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	<b>Assembly Procedure for Potting the High Voltage Plates</b>		
	ATLAS project document no. ATL-IT-AP-0031	Date last modified. 21 May 2001	Approval status Full Production

## 1 Scope

### 1.1 Scope

This procedure establishes requirements for Re-potting the HV plates after failure to meet the gas leak specifications.

### 1.2 Applicability

#### 1.2.1 Applicability

This procedure applies to the potting all HV plates by the Indiana and Duke Production Facilities.

#### 1.2.2 Relation to Other ATLAS Project Requirements

The assembly procedure described by this specification is in addition to other tests and inspections required for module assembly. Module assembly may continue only after acceptable results from this procedure.

## 2 Applicable Documents

### 2.1 Document List

The following documents of the issue in effect on the effective date of this specification form a part of this specification to the extent specified herein.

#### 2.1.1 ATL-IT-EY-0004, ATLAS U.S. Environmental, Health, and Safety Plan

### 2.2 Amendments and Revisions

Whenever this procedure is amended or revised subsequent to its effective date, the Revised Version will be placed in the Engineering Data Management System, the Production DataBase displays, and released to the technicians. The Production

Engineers will coordinate release to the technicians.

## 3 Requirements

### 3.1 Background

The module must have a very low leak between the active gas volume and the surroundings to keep the loss of expensive xenon gas to a minimum and ensure the purity of the active gas. There are hundreds of holes in each HV plate that need to be sealed. Even though the HV Plates are sealed from the active gas side, the radiator side must also be sealed by pouring in glue through the shell penetrations with the module in a vertical position, first on one end, then on the other. The glue is low viscosity glue and steps are taken to ensure uniform coverage of the HV Plate.

Appendix A provides a checklist to be used by Technicians performing this procedure.

## 4 Preparation for Delivery


### 4.1.1 Storage, Packing , and Shipping Requirements

There are no storage, packing, and shipping requirements applicable to this procedure.

## 5 Environment, Health, and Safety (EH&S)

### 5.1.1 EH&S Invoked

This test requires mixing and application of glues that may be subject to special handling appropriate to materials that could involve health hazards. Technicians performing this test must follow the ATLAS U.S. EH&S procedures for glue use and application as described by reference 2.1.1 above.

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## 6 References

- 6.1 **ATLITB1\_0010, Module 1 High Voltage Thick Plate**
- 6.2 **ATLITB2\_0010, Module 2, High Voltage Thick Plate**
- 6.3 **ATLITB3\_0010, Module 3 High Voltage Thick Plate**

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## Appendix A

### *Table Name: tblChecklistPotTheHVPlate*

#### *Step      Check List Steps*

1 Start at the FRONT of the Module. Scan the "Procedure for Potting the High Voltage Plate" Product ID Barcode.

2 Remove Tape and UV Glue from the insertion holes in all positions. Enter "Done"

3 Check that the silicone expansion plugs are properly inserted in the HV cooling holes and cooling straws. Enter "Done".

4 Ensure that the kapton protectors are removed. Enter "Done".

5 Ensure UV glue is in place between the kapton strips and the shell to prevent the glue from escaping out the side of the shell. Enter "Done".

6 Place the module on the potting fixture and insure the module is secure. Enter "Done".

7 Check the module stand is level. Enter "Done".

8 Heat the bottom of the high voltage plate to 45 to 50 deg C using a heat lamp. Monitor with a digital thermometer. Enter "Done".

9 Set up EFD Glue station. Use a 60cc syringe plunger, finger trigger, amber flexible tip needle cut to length and a vacuum syringe to suck up the glue. Contact the supervisor to review the setup. Enter "Done".

10 Use the standard mixing procedure for the Stycast 1266 potting glue (see Potting Chart in Appendix B). Pour the glue into the syringe with needle. Weigh and enter the amount in grams.

11 Set EFD equipment to 25 psi & 1

second. Run a test using the finger dispenser and measure the weight ( the amount should be 0.45g per click).

Adjust the pressure and vacuum as needed to prevent drips. Enter "Done".

12 Be careful to keep the needle tip from touching radiator material. Using the chart in Appendix B, apply the glue withdrawing the needle with each click. Wipe the needle tip when exiting the hole to minimize drips. Enter "Done".

13 Record the weight of the amount of glue left by placing the syringe needle and glue on the scale. Weigh and enter the weight in grams.

14 Turn off heat source 15 minutes after starting to inject the glue. Enter "Done".


15 Come back every ~15 min to check for leaks. Suck up dripping glue, and mark location of leak on chart. Enter "Done".

16 Using a pin, check for glue in the capacitor pin sockets. Repair when necessary. Enter "Done"

17 After the glue is set, if you have not yet done the BACK of the module, enter "Repeat". Otherwise, enter "Done".

18 Remove the silicone expansion plugs from the cooling holes. Enter "Done".

19 Enter "Save" to exit the form and save data. Enter "Cancel" to exit without saving.

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## Appendix B

### Potting Chart

Number of clicks per side (each click =0.5grams) (set up at 0.45g +/- .02g per click and the Rate will rise while potting.)
Start Stop dist. From edge

Position	Module type		
	Type 1	Type 2	Type 3
Total glue to mix	40g part A		80g part A
	11.2g part B		22.4g part B
Short Side	9 clicks per hole		8 clicks
	4.5 – 2 cm		7-2 cm
Long Side	12 clicks per hole		16 clicks
	5.2 –2 cm		9-2 cm
Center	7 clicks per hole		12 clicks
	5.0 –2 cm		8-2 cm
Edge	3 clicks per hole		4 clicks
	0cm		0 cm

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Assembly Procedure for Potting the High  
Voltage Plates Product ID Barcode

 <b>20ITIND0000874</b>
 <b>ATL-0000005758-0</b>

Procedure Part Number

<b>Approvals</b>			
Name	Signature	Revision	Date
J.Callahan		B	
D.Rust		B	
C. Wang		B	